

sensing portion in which resistance wiring is embedded caused by contacting the flow path of gasoline-containing gas is detected by the change of resistance of the resistance wiring whereby the flow rate of the gasoline-containing gas can be detected. The sensing portion is formed on a lower supporting film comprising an inorganic material such as a silicon nitride film supporting the sensing portion. The inorganic material is usually formed in a sputtering process, a CVD process, or a vapor deposition process and, therefore, film quality such as microscopic surface roughness and a film composition delicately changes depending upon apparatus and conditions for the formation of film. Due to the changes in the film quality as such, there are noted dispersion of several % in sensor characteristic (such as sensitivity) whereby it has been difficult to achieve a stable sensor characteristic with good reproducibility. There are other problems that, due to the stress difference between the sensing portion and the inorganic material, the sensor characteristic is deteriorated or a positional shift is caused in the resistance wiring constituting the sensing portion or a wiring on a contiguous control circuit. Particularly, in the case of a sensor in which wiring, such as resistance wiring, is used for the sensing portion, depending on the materials used for the wiring, adherence with a matrix material is significantly weak. When the sensor element is sealed by a resin, there poses a problem that the wiring is liable to experience a positional shift due to thermal or mechanical strain.

Replace the paragraph beginning at page 5, line 9 with:

Figs. 3A and 3B are drawings which illustrate the structure of the air flow sensor of Example 1 according to the present invention where Fig. 3A is a plan view and Fig. 3B is a cross-sectional view along the line IIIB-IIIB of Fig. 3A.

IN THE CLAIMS:

Replace the indicated claims with:

1. (Amended) A sensor element comprising:
sensor substrate;
a sensing portion supported by the sensor substrate; and
a resin film between the sensor substrate and the sensing portion.
3. (Amended) The sensor element according to claim 2, wherein the microfine wiring pattern comprises plural wiring patterns adjacent each other.